Social Sciences 10 - 20 - 30

Curriculum Guide

for

Geography

Alberta
EDUCATION
1974

SOCIAL SCIENCES 10(a), (b) - 20(a), (b) - 30(a), (b)

(Revised June, 1975)

RATIONALE

The Social Sciences 10(a), (b) - 20(a), (b) - 30(a), (b) program is intended to complement the Alberta Social Studies by encouraging increased understanding of "man and his world". Courses in this program are distinct from the Social Studies curriculum, in that they focus on the structure, concepts, and methodologies of specific social science disciplines rather than social issues within a values-oriented interdisciplinary context.

It is intended that the wide variety of modular units should increase the program flexibility available to High Schools and the students enrolled in them. The electives are not intended to provide an alternative to the existing Social Studies curriculum. Rather, they have been developed to meet diversified student interests and to add enrichment and in-depth understanding to the scope of the total curriculum.

STRUCTURE

The Social Sciences 10(a), (b) - 20(a), (b) - 30(a), (b) program is comprised of a series of modular units. Each modular unit develops several themes appropriate to one of the following disciplines - Anthropology, Comparative World Religions, Economics, Geography, History, Philosophy, Political Science, Psychology and Sociology. The sequence in which the modular units of any particular discipline may be studied is optional.

Each modular unit has a credit value of three. In structuring the social sciences program a school is free to select those units that best complement teacher and student interests. Students will receive credit for completed modular units in accordance with the grade level in which they are registered, to a maximum of two modular units (six credits) per grade level:

Grade 10	Social Sciences 10(a) and 10(b)
Grade 11	Social Sciences 20(a) and 20(b)
Grade 12	Social Sciences 30(a) and 30(b)

However, students who have obtained the maximum of six credits at their grade level and wish to enroll in further modular (unit) courses would be eligible for credits at a lower grade level than those in which they are registered. Students seeking entrance to post-secondary institutions are advised to complete two (2) modular units at the "30" level, since receiving institutions will probably require 6 credits in Social Sciences 30.

In the interest of students who transfer to other schools during their High School careers, it is suggested that students' school transcripts contain reference to specific titles of modular units completed.

OBJECTIVES

1. To develop an insight into the basic concepts of the discipline.

2. To develop an insight into specific modes of inquiry and skills unique to a particular discipline.

3. To develop an understanding of how knowledge is produced in a particular discipline.

4. To provide opportunities to experience the emotive qualities inherent to an interest-motivated approach to the study of a discipline.

G E O G R A P H Y

Modular Unit 1 - LOCAL AND CANADA STUDIES

Modular Unit 2 - WORLD PATTERNS

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SOCIAL SCIENCES 10, 20, 30

RATIONALE

The emphasis in the interdisciplinary Social Studies 10, 20, 30 is on the investigation of relevant social issues. The Social Studies program offers an introduction to some of the concepts, the interrelated ideas and the processes of knowledge development of the social science disciplines. To enable a student to pursue further an expanding interest in a specific discipline, the Social Sciences 10, 20, 30 electives have been developed as in-depth studies to complement the social studies curriculum. Since each social science offers a mode of critical thinking that leads to a more accurate comprehension of the central theme, "Man and His World", the electives will allow students to increase their knowledge and understanding of the structure and methodology of specific social science disciplines without detracting from the social studies program.

STRUCTURE

The Social Sciences 10, 20, 30 electives consist of several modular units, each of which is complete within itself. Each unit develops several themes from one of the social sciences: Anthropology, Sociology, Psychology, Geography, Economics, Political Science, Philosophy, World Religions and History.

The sequence in which the disciplines may be studied is optional, but modular units within a particular discipline may be sequential. Social Sciences 10 is not a prerequisite for Social Sciences 20, nor is Social Sciences 20 a prerequisite for Social Sciences 30.

In each of Social Sciences 10, 20, students may study one modular unit for three credits or two modular units for six credits, but Social Sciences 30 is a five-credit course comprising the study of two modular units. In structuring the social science electives within a school, the school is free to select those units that best complement teacher and student interest. The electives are not intended to provide either an alternative or a substitute for the existing social studies curriculum. Rather they are offered to meet diversified student interests and add enrichment through individual or group study where this is deemed desirable.

OBJECTIVES

1. To develop an insight into the basic concepts of the discipline.
2. To develop an insight into specific modes of inquiry and skills unique to a particular discipline.
3. To develop an understanding of how knowledge is produced in a particular discipline.
4. To provide opportunities to experience the emotive qualities inherent in an interest-motivated approach to the study of a discipline.

INTRODUCTION TO GEOGRAPHY

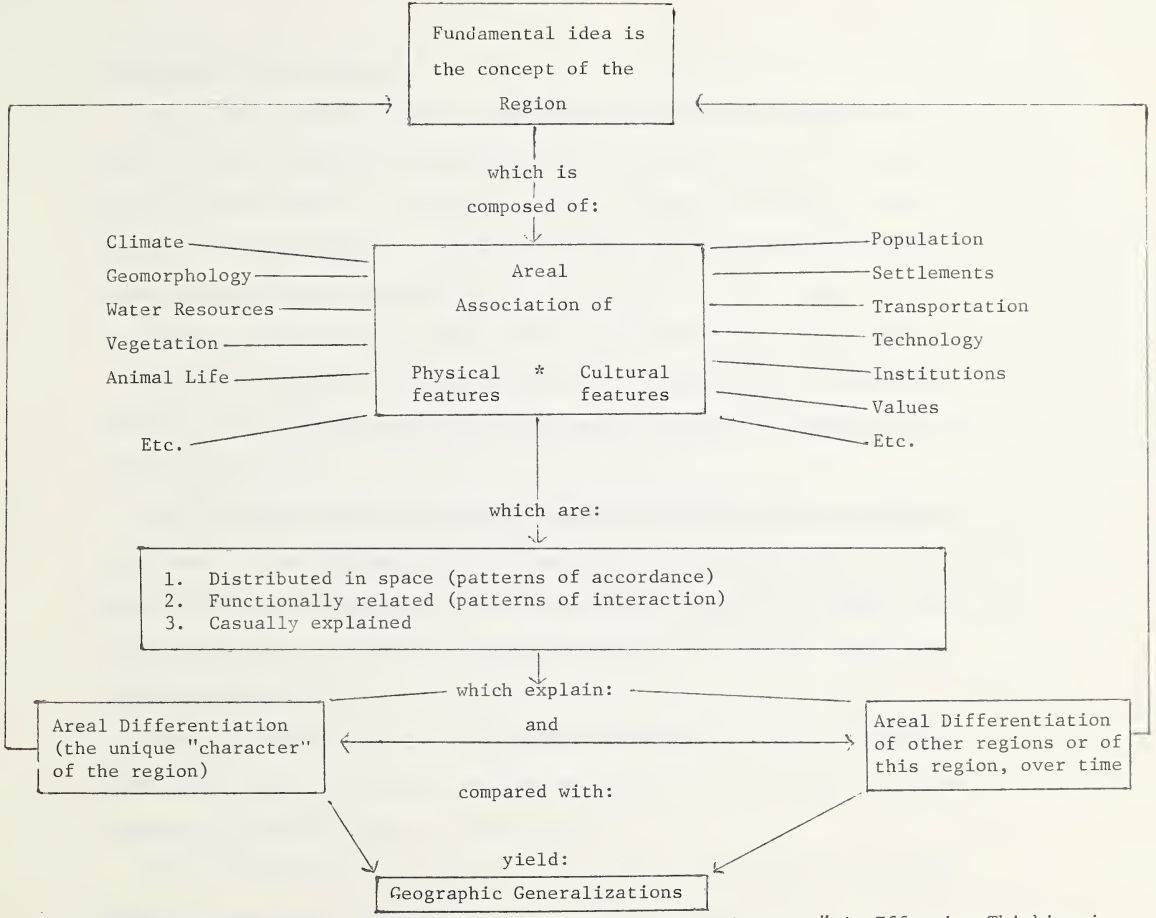
We live in a world where, through increased technology together with population increase, there is forced upon the individual certain needs if he is to survive with understanding in his environment. He must first know where he is in relation to the rest of the world both physically and socially, that some of his problems are common to many peoples, and that some are peculiar to himself. He must, therefore, gain the knowledge of place and how the particular factors of his place compare with other places upon the earth's surface. The student, in observing the local area and its physical and human properties, will gain the knowledge and skills which he will require to associate his local problems with those of a wider area. By a gradual build-up of areal inter-relationships, the student can apply, through analysis of basic parts (e.g. type of houses, population density, street patterns, and other physical factors of site, such as landform or soil type), the rudiments of the geographic mode of inquiry as presented in Figure 1. From these rudiments, he should be able to synthesize basic relationships so that in validating his ideas he will modify his concepts as to what factors (both human and physical) are affecting the patterns in the local area and the world. It is hoped that the students' ideas will, through an inquiry approach to the study of geography, evolve into accurate generalizations about the local

area and the world which approximate the generalizations listed for this course. The teacher should by no means dictate these generalizations to the class, but should keep them constantly in mind as the cognitive outcomes for Geography modules.

It is most important that in the teaching of Geography the teacher encourage his class to gain knowledge through the use of field work, map and air photo reading, picture and graph analysis, analysis of first-hand accounts of places, and statistical techniques which are all aspects of geographic inquiry.

It is necessary that the student taking the Geography courses should be exposed to problems which exist outside the classroom but within the local area, so that he may become aware of the practical worth of the inquiry approach to meeting the everyday situations he will encounter. Knowledge of facts should be introduced as the class perceives the need for them throughout the unit study. The student should be encouraged to extrapolate and interpret toward the end of each unit after he has first discovered the factors of the problem (e.g. the change in settlement pattern in the local area) for himself by the use of inquiry techniques.

Figure 1. A Model of Geographic Inquiry



Charlotte Crabtree, "Supporting Reflective Thinking in the Classroom" in Effective Thinking in The Social Studies, 37th Yearbook of the National Council for The Social Studies, Washington, D. C., 1967, p. 92.

ORGANIZATION OF THE COURSE

There are two Modular Units in geography in the Social Sciences 10, 20, 30 series. It is recommended that Modular Unit 2 be considered as a sequential module to Modular Unit 1, but Modular Unit 1 is not necessarily a pre-requisite to Modular Unit 2. Modular Unit 2 would be a useful adjunct to either Social Studies 20 or 30.

Each unit carries three credits and each is divided into three themes.

For those students or classes requiring more background, an introductory theme on skills and concepts may be taken before the study of either of the two modular units begins.

The Geography component of Social Sciences has been designed to enable the student to learn geography while inquiring as a geographer would. Consequently, emphasis is placed on the acquisition of skills and organizing concepts which will enable the student to understand and attack problems dealing with relations within and among places.

The two Units are based on a population theme and move from an intensive study of the local area through the rest of Canada in Modular Unit 1, to an examination of world patterns in Modular Unit 2.

Since the Units are predicated on a discovery approach using the inquiry method, the content is presented through a series of cases which may either be studied directly through field observations or indirectly through sample study or other materials.

Teachers who piloted these units found them to be rather long, but they did not wish them to be reduced since the length leaves an element of choice as to what area might be stressed and which might have lighter treatment.

MODULAR UNIT 1 - LOCAL AND CANADA STUDIES

Theme One: The Change in Settlement Patterns in the Local Area, is based on the area in which the school is located and provides a vehicle for the development of map, air photo, and field survey skills and understandings. It should be heavily field-oriented. Although its organization assumes an urban location, the order of the topics may be changed to suit the environment in which the school is located.

Theme Two: Settlement Patterns in Western Canada, moves the focus of study from the local setting to the still familiar but much more diversified regions of Western Canada. The emphasis is on human occupance and the factors which have led to the development of certain patterns. The concept of the region is emphasized through case studies of physical and human distributions.

Theme Three: Settlement Patterns in Eastern Canada, is designed to show man's dynamism in developing and utilizing the natural resources within a given area. The locales suggested for study should be approached from a "process" viewpoint. By studying these processes (e.g. transportation, manufacturing, exploitation of natural resources) and determining their inter-relationships, the student should be able to discern the settlement patterns of the people who live in Eastern Canada, both from a depth viewpoint, as in the case study, and from a general or broad viewpoint.

Modular Unit 1 has emphasized the use of intensive case studies of the local area, Western Canada and Eastern Canada with a heavy emphasis on the development of skills and concepts basic to an understanding of geography. The student should have developed a basic repertoire of map, air photograph, photograph and graph reading skills, as he works from the concrete to the abstract; from the specific to the general; from the local to the distant. At the same time the student has been encouraged to make limited generalizations related to geographic concepts.

MODULAR UNIT 2 - WORLD PATTERNS

Theme One: World Patterns of Populations and Settlements, emphasizes human occupance of the world, beginning with Canada, and the factors related to it. It describes trends and patterns, identifies problems and considers possible solutions.

Theme Two: World Patterns of Man's Use of the Earth, examines the correlation between the distribution and density of mankind over the earth and the opportunities for making a living. It examines the relationship between technology and the ability to alter, organize and use the earth's resources.

Theme Three: World Patterns of Physical Elements, attempts to develop an understanding of the spatial distributions, relations processes and variations of the physical - biological system and subsystems. Students should interpret the physical biological world as the foundation for human occupance and activities and develop an understanding of the changes and processes of changes in the physical - biological world resulting from man's modification of his habits.

GENERAL OBJECTIVES

1. The student should acquire an understanding of the following major organizing concepts in geography: areal association, density, human occupance, pattern, region, scale, spatial distribution, spatial interaction. [2]

2. The student should acquire facility in the use of the geographer's mode of inquiry and skills such as the following:

   a. the reading and interpretation of aerial photographs, maps, pictures, tables and graphs, and other written source materials.

   b. field work processes of observation and recording.

3. The student should have the opportunity to develop positive attitudes in relation to the following topics:

   a. interdependence of peoples

   b. respect for similarities and differences of peoples

   c. clarification of values in respect to other value systems

   d. respect for scientific method of inquiry

   e. knowledge of multiple causation

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[2] See Appendix A for a discussion of each concept.

MODULAR UNIT 1 - REFERENCES

Primary References

Wolforth, J. and R. Leigh. Urban Prospects. Toronto: McClelland & Stewart, 1971.

Tomkins, G., T. Hills and T. R. Weir. Canada, A Regional Geography. (Second Edition). Toronto: W. J. Gage, 1970.

MODULAR UNIT 2 - REFERENCES

Primary References

Kendall, Glendinning and McFadden. Introduction to Geography. New York: Harcourt, Brace & Jovanovich, (Note: Canadian supplier is Longman).

MODULAR UNITS 1 & 2 - REFERENCES

Supplementary References

At the end of each theme in the two modular units, supplementary references are listed. Asterisks indicate paperback editions.

INTRODUCTORY UNIT

INTRODUCTORY SKILLS AND CONCEPTS IN GEOGRAPHY

With some classes it may be necessary to give students more background before the study of the modules in this program begins.

In response to this need teachers probably should determine whether the class to be taught requires time to learn and understand some of the basic skills and concepts used in the course. Time spent on this introductory unit will, therefore, vary with each group. The outline below is considered basic for the program that follows. Since the two modular units in this program are not necessarily sequential, those classes beginning with Modular Unit 2 may also need to spend some time on this introductory study.

1. Map Reading and Atlas Skills

    a. Atlas

        - Latitude and Longitude
        - Time Zones
        - Scale
        - Legend

    b. Topographical Maps

        - Grid Reference
        - Contours and contour interval
        - Landforms
        - Gradient
        - Profile
        - Symbols

c. Thematic Maps

- Quantitative and Qualitative
- Isopleths

d. Other

- Graphs and diagrams (interpolation)
- Aerial photographs

2. Movement of the Earth

a. Rotation and Revolution

b. Seasons

c. Climate Zones

3. Climate

a. Elements of Climate

b. Factors influencing climate

- Latitude
- Elevation
- Position of mountains
- Proximity of water masses
- Wind Systems
- Ocean Currents

4. World Geographic Systems

a. Winds

b. Ocean Currents

c. Climate

d. Land use

e. Population distribution

Atlases

Atlas of Alberta. University of Alberta and University of Toronto Press, 1969.

Atlas of Canada. Queen's Printer, Ottawa.

Gage World Atlas. Toronto: Gage Educational Publishing, 1972.

Goode's World Atlas. Chicago: Rand McNally, 1971.

General References

Inch, R. S. and W. G. Stone. The Physical Environment. Toronto: McGraw-Hill Ryerson, 1972.

Kendall, H. M. et al. Introduction to Geography. New York: Harcourt, Brace & World, 1967.

Sebert, L. M. Every Square Inch. Ottawa: Department of Energy, Mines and Resources, 1970.

Stanford, Q. H. et al. Geography: A Study of Its Elements. Toronto: Oxford University Press, 1969.

Strahler, A. N. Introduction to Physical Geography. Toronto: Macmillan of Canada, 1970.

Trewartha, G. T. et al. Fundamentals of Physical Geography. Toronto: McGraw-Hill, 1968.

Tyner, Judith. The World of Maps and Mapping. Scarborough: McGraw-Hill Ryerson, 1973.

Exercises

Anderson, M. L. Steps in Map Reading. Chicago: Rand McNally, 1970. (Full of useful assignments).

MODULAR UNIT 1

LOCAL AND CANADA STUDIES

MODULAR UNIT 1 - LOCAL AND CANADA STUDIES

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Theme One: The Change in Settlement Patterns in the Local Area

(This unit is drafted in a format recommended by the committee)

SKILLS AND CONCEPTS

Skills

Through the making and study of maps and the study of aerial photographs, the student will develop skills related to depicting and reading: shape and symbols; direction; scale and area; elevation; grid systems.

Conceptual Questions

1. How is neighbourhood related to city?
2. How does one define city in relation to neighbourhood and settlement patterns?
3. How are the industrial resources of an urban area related to the primary resources of its rural area?
4. How are systems related to the city?
5. How are settlement patterns of a particular town or city related to the physical features of the site and the social characteristics of the people?

Conceptual Questions	Specific Questions	Suggested Activities
1. What are neighbourhoods?	1.1 What are the boundaries of the neighbourhood?	a. Contact planning or civic offices b. Map area served by school c. Visual field survey d. Interview residents, re: what they consider neighbourhood
	1.2 What is the physical environment of the neighbourhood? (lithologic, atmospheric, hydrologic, biological)	a. Study topographic maps b. Study spatial distribution of vegetation and effect upon neighbourhood environment c. Study micro-climate of neighbourhood d. Examine modification to site by man
	1.3 What are the land use patterns of the area?	Map the land use of neighbourhood on a field survey
	1.4 What physical and cultural factors have influenced the development of the land use pattern?	a. Map study b. Field observation c. Interview municipal officials, businessmen

Conceptual Questions	Specific Questions	Suggested Activities
1. What are neighbourhoods? (cont'd)	1.5 Has the land use pattern always been the same?	a. Date buildings and record on map b. Study map sequences c. Interview planning authority
	1.6 What is the spatial distribution of population characteristics within the neighbourhood?	a. Field work - surveys b. Mapping groups - population characteristics (age, sex, employment, ethnic)
2. How is the nieghbourhood related to the larger settlement area?	2.1 What makes the neighbourhood different from or similar to the larger settlement areas? (Shopping centres, schools, boundaries, ethnic differences, etc.)	Comparison of planning and field data
	2.2 Questions 1.2, 1.3, 1.4, 1.5 posed for larger area.	a. Small groups prepare maps and reports on various aspects b. Study spatial distribution of individual establishments
3. How is the local situation related to its region?	3.1 What is the social and economic influence of the local centre on its surrounding region?	a. Study the spatial distribution of population centres within the region and reasons for pattern b. Examine shopping, business, entertainment, employment facilities c. Study specialized functions within region

Conceptual Questions	Specific Questions	Suggested Activities
3. How is the local situation related to its region? (cont'd)	3.2 How does the region relate to the local area?	See activities for 3.1
4. Are the generalizations derived justified by other locales?	Case study of another comparable locale.	

SUPPLEMENTARY REFERENCES

Atlases

Atlas of Alberta. University of Alberta Press and University of Toronto Press, 1969.

The Canadian Oxford School Atlas. Oxford University Press, Toronto, 1963.

Books for Skill Development

Allpress, J. P. Visual Geography. George G. Harrap & Co. Ltd., Toronto, 1962.

Boggs, A. Maps: How To Read and Interpret Them. Toronto: Clark, Irwin & Co., 1952.

Briggs, K. Field Work in Urban Geography. Oliver & Boyd (A Division of Longman Group Ltd.) Edinburgh, 1970. (Good for ideas in field work).

Bygott, John. An Introduction to Mapwork and Practical Geography. (9th Edition) University Tutorial Press, London, (Copp-Clark, Toronto), 1964.

Chevrier, E. D. and D. F. Aitkens. Topographic Map and Air Photo Study. MacMillan of Canada, Toronto, 1969.

Dickinson, G. C. Maps and Air Photographs. Macmillan of Canada, Toronto, 1968.

Garnier, Benjamin John. Practical Work in Geography. Edward Arnold, London (MacMillan of Canada, Toronto), 1963.

General Education, Inc. Understanding Maps. (programmed text). Allyn & Bacon, Inc., Rockleigh, N. J., 1966.

Gopsill, G. F. and Frank Beesley. Practical Geography: Exercises with Models and Improvised Equipment. Macmillan & Co., Ltd., London, 1964.

Graham, Harry. Reading Topographic Maps. Holt, Rinehart & Winston, Toronto, 1968.

Greenhood, David. Mapping. The University of Chicago Press, Chicago, 1964.

Gunn, A. Techniques in Field Geography. Copp-Clark Publishing Co. Ltd., Vancouver

Hardy, Albert Victor. The Physical Landscape in Pictures. Cambridge University Press, Cambridge, 1964.

Hock, T. K. and E. D. R. Brown. Geographical Interpretation Through Photographs. Methuen Publications, Agincourt, Ontario, 1972.

Jones, P. A. Field Work in Geography. Longman, London, 1968.

Marshall, I. C. and A. H. Meux. Introductory Map Reading. University of London Press Ltd.

Meux, A. H. Reading Topographical Maps. University of London Press, London, 1970.

Minshull, Roger. Landforms from the Air. Macmillan of Canada, Toronto, 1970.

Monkhouse, F. J. Landscape from the Air; A Physical Geography in Oblique Air Photographs.

Maps and Aerial Photos

Foreign Topographic Maps. Ask for a map catalogue.

- Great Britain:

  The Director General
  Ordanance Survey
  Romsey Road
  Maybush
  SOUTHAMPTON, SO9 4DH, England

- Other Foreign Countries:

  Edward Stanford Ltd.
  12 - 14 Long Acre
  LONDON, WC2E 9LP, England

Topographic Maps and Aerial Photos

Chevrier, E. D. and D. F. Aitkens. Topographic Map and Air Photo Interpretation. Macmillan of Canada, Toronto, 1970.

Contents: Section A: Introduction to Topographic Maps and Air Photographs

Section B: Foreign Maps

Section C: Canadian Maps and Air Photographs

Wanless, H. R. Aerial Stereo Photographs. (U. S. A. and foreign) T. N. Hubbard Scientific Company, Northbrook, Illinois, 1965.

Reading Maps. T. N. Hubbard Scientific Company, Northbrook, Illinois. (Maps with aerial photos of corresponding areas reveal the important purposes of maps and the relationships of land topography to cultural features).

Richason, B. F. Atlas of Cultural Features. T. N. Hubbard Scientific Company, Northbrook, Illinois. (Topographic maps and aerial photos are shown for simultaneous viewing and comparative studies relating to the imprint of man on the land).

Sets of Air Photo Stereograms. Ask for a catalogue.

Committee on Aerial Photography
University of Illinois
URBANA, Illinois, U. S. A.

Canadian Sources

a. Canada Map Office
Department of Energy, Mines and Resources
615 Booth Street
OTTAWA, Ontario K1A 0E4

- topographic and other maps of Canada at 50¢ a sheet with a 40% discount for schools

- write to above address and ask for free index sheets for the particular scale in which you are interested.

  1:25,000 - large scale available only for city areas

  1:50,000, 1:250,000 and other scales available for most or all of Alberta as well as Canada.

b. National Air Photo Library
Department of Energy, Mines and Resources
615 Booth Street
OTTAWA, Ontario K1A 0E4

Further Reading

Beaujeu-Garnier, J. The Geography of Population. Longman Canada Ltd., Don Mills, Ontario, 1966.

Brinkhurst, R. O. and D. A. Chant. This Good, Good Earth: Our Fight For Survival. Macmillan of Canada, 1972. (Concerns pollution problems in Canada).

Broek, J. O. M. and J. W. Webb. A Geography of Mankind. McGraw-Hill Book Company, Toronto, 1973. (Excellent book on all aspects of cultural geography). Part III - SETTLEMENTS: Farm and Village: Towns and Cities; Emerging Urban Patterns. Part IV - POPULATION CHANGE: The Differential Growth of Population; Population Movements; Problems of Population Growth.

Bloom, A. L. The Surface of the Earth. Prentice-Hall Inc., Englewood Cliffs, 1969. (Foundation of Earth Science Series).

Bridges, E. M. World Soils. Macmillan of Canada, Toronto, 1970.*

Burnett, R. B. Physical Geography in Diagrams. Longman, London, 1965.

Clark, S. P., Jr. Structure of the Earth. Prentice-Hall Inc., Englewood Cliffs, 1971. (Foundations of Earth Science Series).

Cruickshank, J. Soil Geography. David & Co., 1972*

Detwyler, T. R., et al. Urbanization and Environment: The Physical Geography of the City. Duxbury Press, A Division of Wadsworth Publishing Company, Inc., Belmont, California, 1972. (Excellent reference).

Dohrs, F., and L. M. Sommers. Selected Readings in Physical Geography. Thomas Y. Crowell Co., New York, 1967*.

Ernst, W. G. Earth Materials. Printice-Hall Inc., Englewood Cliffs, 1969. (Foundations of Earth Science Series).

Kendall, H. M., R. M. Glendinning and C. H. MacFadden. Introduction to Physical Geography. Harcourt, Brace & World Inc., New York, 1967.

Lehr, P. E., R. W. Burnett and H. S. Zim. Weather. (A Golden Science Guide). Golden Press, New York, 1965.*

Mauder, W. J. The Value of the Weather. Methuen Publications, Agincourt, Ontario, 1970.

Monkhouse, F. J. and A. V. Hardy. North American Landscape. Cambridge University Press, (MacMillan of Canada, Toronto), 1965.

Nelson, J. G. and M. J. Chambers. Vegetation Soils and Wildlife. Methuen Publications, Agincourt, Ontario, 1969.*

The Ocean. A Scientific American Book. W. H. Freeman & Company, San Francisco, 1969.

Riley, D. R. and A. Young. World Vegetation. Macmillan of Canada, Toronto, 1966.* (Well illustrated booklet of vegetation as well as soils).

Robinson. Map Studies. (With Field excursions). Longman Canada Ltd., Toronto, 1970.

Roblin, H. S. Map Projections. Macmillan of Canada, Toronto, 1969.

Skinner, B. J. Earth Resources. Prentice-Hall Inc., Englewood Cliffs, 1969. (Foundations of Earth Science Series).

Smythe, J. M., C. G. Brown and E. H. Fors. Elements of Geography: Physical Geography. Macmillan of Canada, Toronto, 1970.*

Sebert, L. M. Every Square Inch. (The Story of Canadian Topographical Mapping). The Department of Energy, Mines and Resources, Ottawa, 1970. (Excellent for Canadian Topographic map reading).

Simmons, James and Robert. Urban Canada. The Copp Clark Publishing Company, 1969.

Spier, Robert F. G. Surveying and Mapping: A Manual of Simplified Techniques. Holt, Rinehart & Winston, Inc., Toronto, 1970.

Trewartha, G. T., A. H. Robinson and E. H. Hammond. Fundamentals of Physical Geography. McGraw-Hill Book Co., Toronto, 1968.

Tyner, Judith. The World of Maps and Mapping. McGraw-Hill Ryerson Ltd., Scarborough, Ontario, 1973.

Watkins, W. J. H. and H. S. L. Watkins. How to Look at Geographical Pictures. London: Macmillan & Co. Ltd.; New York: St. Martin's Press, 5th edition, 1965.

Wheeler, K. S. (ed.) Geography in the Field. Blond Educational, Oadby, Leicester, Great Britain, 1970.

Wolforth, J., and R. Leigh. Urban Prospects. McClelland & Stewart Ltd., Toronto, 1971.

Wood, Margaret. Map Reading for Schools. George G. Harrap & Co. Ltd., London, 1963.

* Paperbacks

Theme Two: Settlement Patterns in Western Canada

Specific Objectives

1. The student should know the concepts of a region and understand the following generalizations:

   a. A region is an area defined by one or more common characteristics.

   b. A region may be a part of a larger region.

   c. Regions may not have precise boundaries. They may merge gradually with one another. They may overlap.

   d. Many factors (social, economic, physical) influence land use in a region.

   e. Population is not evenly distributed within any one region.

   f. Human occupance can modify the physical make-up of a region, just as the human occupance can be influenced by the physical.

   g. Regions are either uniform or modal depending on the criteria used to define them.

2. Through a study of primary and secondary source materials, students should be able to identify the major factors in a region and explain the relationships among them.

Concepts

1. The human occupance of Western Canada

   a. What is the extent and present pattern of population in Western Canada?

      - a study of dot maps could introduce this topic. (See Scarfe et al.)

b. What factors have influenced the form of this settlement pattern?

- students could hypothesize about this and then check by having the settlement pattern superimposed on maps of other patterns (i.e. resources, climate, vegetation, transportation, soils, manufacturing, etc.)

c. How influential is climate as a factor in the occupance of Western Canada?

- the relationships between climate regions and settlement should be explored.

- the factors that cause climate could be examined by a study of weather in the local area. (Students could have exercises on weather map series from the Department of Transport).

- man's ability to modify the effects of weather and climate should be considered in relation to the main problem.

2. Human occupance regions of Western Canada

a. What population regions can be identified in Western Canada?

- either as individuals or groups, the students could make their own regionalization of the area based on their own criteria.

- the various regions could be compared by the whole class to illustrate the point that regions do not occur naturally, but are hypothetical constructs.

- the teachers could then show the class the traditional divisions of prairies, cordillera, coast, tundra, and shield and examine the basis for these regions and compare it with the students' reasoning.

3. Depth studies of regions

   a. From Scarfe et al and other reference books, (see end of this theme) teachers are asked to select several sample studies to pursue in depth with their classes. These samples should be selected as representatives of the larger region and provide an opportunity for the student to study a specific example.

   b. How do these samples fit into the larger region of Western Canada?

      - this provides an opportunity to relate the samples to the larger patterns and to review the work of this unit.

SUPPLEMENTARY REFERENCES

Atlases

Atlas of Alberta. University of Alberta Press and University of Toronto Press, 1969.

Atlas of British Columbia.

Atlas of Manitoba.

Atlas of Saskatchewan. University of Saskatchewan, Saskatoon, 1969.

Atlas of the Prairie Provinces. Oxford University Press, 1971.

Atlas of Canada. Queen's Printer, Ottawa.

Senior Atlas for Canada. Harold Fullard, George Philip & Sons Ltd., London, 1966.

Case Studies

Alberta Industries and Resources. Alberta Bureau of Statistics, (School Book Branch), 1970.

Association of Agriculture. A Grain Farm on the Portage Plains; Sample Studies of Individual Farms. Series 53. Victoria Street, London, S. W. I., United Kingdom.

Gunn, A. British Columbia - Landforms and Settlements. Richmond: B. C. Smith Lithograph Co. Ltd., 1967.

MacNaughton, Carleton. Fruit Farming in the Okanagan. Toronto: Ginn & Company, 1967.

Rushby, J. G., J. Bell, and M. W. Dybeck. "Cape Dorset: An Eskimo Settlement", Stage One in the Study Geography Series. London: Longman, Green & Co. Ltd., 1967.

Russell, W. J. Wheat Farming Near Regina, Canada. Ginn & Company, 1968.

Welsh, Arthur J. A Forest Industry at Port Alberni. Toronto: Ginn & Company, 1967.

Books

See "Books" section at the end of Theme Three - Settlement Patterns in Eastern Canada. (See pp. 47 - 49.)

Theme Three: Settlement Patterns in Eastern Canada

Specific Objectives

1. From geographic facts the student should be able to visualize a region and gain an understanding of the interrelationship among living patterns, industrial processes and natural resources.

2. The student, by studying the various processes of resources development, should be able to realize that a settlement pattern is not static, but a constantly changing entity.

3. The student should gain a greater understanding of the similarities and differences in modes of living within Canada.

Concepts

1. The human occupance of Eastern Canada

   a. What is the extent of and present pattern of population in Eastern Canada?

   b. What factors have influenced the form of this settlement pattern?

      NOTE: The emphasis is on looking at patterns and noting the correlations and discontinuities; it does not imply a depth study of each factor at this time.

These two questions could be handled in much the same way as was suggested in Theme Two. (See pp. 37 - 38).

2. Depth studies of regions

   The intent is similar to Theme Two and provides an opportunity to study distinct settlement patterns by noting the interrelationships of man and his physical environment in various settings.

One or two case studies of each of the following types of settlement should lead to the further development and reinforcement of the regional concept:

a. Farming communities as found in the Guelph Area; The Gaspe Area; the St. John River Valley; the Annapolis Valley.

b. Fishing Villages such as Lunenburg; Canso; one of the "liveyers" in Newfoundland.

c. Transportation hubs as typified by Montreal; Halifax; Toronto.

d. Manufacturing and industrial centres such as Toronto; Hamilton; Windsor.

e. Mining communities as found in the Sudbury Area; Cape Breton Island.

f. Forestry areas such as Corner Brook, Pictou; Three Rivers; Hull.

NOTE: The specific places mentioned above are merely suggestions for case studies. Teachers should feel free to choose other sites in Eastern Canada if they wish to do so.

To help the students integrate the features in the case study, they could be guided by the following:

a. What is the population density?

b. How is the population distributed within the community?

c. Why is the main industry located in this community?
Are there other industries or commercial enterprises located here?

d. What are the main occupations in the area?

e. What standard of living do the inhabitants enjoy?
(e.g. Income, type of housing, kinds of transportation, education facilities, recreation facilities, etc.)

f. Do the physical aspects of the environment (e.g. climate, soil, physiography, vegetation, etc.) play a dominant role in this community?

3. Studies of the larger regions in Eastern Canada

This examination of the systematic aspects (e.g. natural resources, manufacturing, transportation, etc.) of patterns in Eastern Canada should lead to the realization of the variety of ways of regionalizing this area.

a. Exploitation of Natural Resources

- where are the fishing, agricultural, forestry, mining and hydro-powered areas located?
- what are the sizes of the above primary industries?
- what are some of the extraction methods?
- how is manpower utilized?
- what is the relationship of these primary industries to the secondary industries?

b. Manufacturing

- where are the major manufacturing centres located?
- where are their sources of raw materials?
- what modes of transportation are used for raw materials? for finished products?
- what part do coal, oil, natural gas and electrical power play in the manufacturing process? what is the advantage of power grid? where are the pipe lines located?
- how many men are employed in secondary industries?
- what is the process for distributing the finished product to the customer?

c. Transportation

- why are most manufacturing centres located on waterways?
- what are the advantages of the St. Lawrence Seaway?
- what is the importance of the airlines to industry?
- would communities of people be able to exist without roads?
- what is the function of railway networks?

4. Population (summation)

How does the exploitation of natural resources, manufacturing, and transportation affect the density and distribution of population in Eastern Canada?

SUPPLEMENTARY REFERENCES

Case Studies

Association of Agriculture. Farming in the Commonwealth Series.
53 Victoria Street, London S. W. 1, England.
1. The Annapolis Valley of Nova Scotia - A Typical Valley Farm
2. A Dairy Farm in French Canada
3. A Mixed Farm in Southern Ontario

Forrester, James. Making Steel in Hamilton. Toronto: Ginn & Co., 1967.

Richards, R. P. "Living in the Tundra", Around Our World. ed. D. L. Massey et al. Toronto: Ginn, 1965.

Toronto. Kit, Filmstrip Unit. National Film Board of Canada, Ottawa.

Ginn & Company. Ginn Sample Studies. A series of 24 page booklets on various topics in Canadian geography. Toronto, 1969.

Moore, E. (ed.). Holt Sample Studies. A series of in-depth sample studies set in the various regions of Canada including urban, rural and resource examples. Holt, Rinehart & Winston Ltd., 1969.

Maps and Aerial Photos

See section at the end of Theme One, The Change in Settlement Patterns in the Local Area. (pp. 32 - 34).

Books

Fells, Mabel and Eldon Pipher. Geography for Canadians - Book I. McGraw-Hill Co. of Canada, Toronto, 1961.

Gentilcore, L. (ed.). Ontario: (Studies in Canadian Geography). University of Toronto Press, Toronto. Published for the 22nd International Geographical Congress, Montreal, 1972.

Gray, Earle. The Impact of Oil: The Development of Canada's Oil Resources. The Ryerson Press - Maclean Hunter Ltd., Toronto, 1969. (Series on "Shaping Canada's Environment").

Grenier, F. (ed.). Quebec: (Studies in Canadian Geography). University of Toronto Press, Toronto. Published for the 22nd International Geographical Congress, Montreal, 1972.

Hamelin, Louis Edmond. Canada: A Geographical Perspective. Wiley Publishers of Canada Limited, Toronto, 1973.

Innis, D. Q. Canada: A Geographic Study. McGraw-Hill Company of Canada Limited, Toronto, 1966.

Krueger, R. R. and R. G. Corder. Canada: A New Geography. Holt, Rinehart & Winston of Canada, Ltd., Toronto, 1968.

Kubly, Kerbert and the Editors of Life. Canada (Life World Library), Time Incorporated, New York.

Macpherson, Alan G. (ed.). The Atlantic Provinces (Studies in Canadian Geography). University of Toronto Press, Toronto. Published for the 22nd International Geographical Congress, Montreal, 1972.

Megill (editor). Patterns of Canada. The Ryerson Press, Toronto, 1966.

Peters, James. A Guide to Understanding Canada. Guinness Publishing Co., 1968.

Putnam, D. F. and R. G. Putnam. Canada: A Regional Analysis. J. M. Dent & Sons (Canada) Ltd., Toronto, 1970.

Robinson, J. L. (ed.). British Columbia (Studies in Canadian Geography). University of Toronto Press, Toronto. Published for the 22nd International Geographical Congress, Montreal, 1972.

Robinson, J. Lewis. Resources of the Canadian Shield. Methuen Publications, Toronto, 1969.

Scarfe, N. V., G. S. Tomkins, and D. M. Tomkins. A New Geography of Canada. W. J. Gage Ltd., Toronto, 1963.

Simmons, James and Robert. Urban Canada. Copp Clark Ltd., Toronto, 1969.

Smith, P. J. (ed.). The Prairie Provinces (Studies in Canadian Geography). University of Toronto Press, Toronto. Published for the 22nd International Geographical Congress, Montreal, 1972.

Tomkins, G. S., T. L. Hills, and T. R. Weir. Canada: A Regional Geography. Gage Educational Publishing Ltd., Toronto, 1970.

Wall, Edward. This Land - A Geography of Canada. Oxford University Press, Toronto, 1961.

Watson, J. W. Canada: Its Problems and Prospects. Longman Canada Ltd., Don Mills, 1968.

Wolforth, John. The Northland: Studies of the Yukon and the Northwest Territories. McClelland & Stewart Ltd., Toronto, 1969.

Wonders, W. (ed.). The North (Studies in Canadian Geography). University of Toronto Press, Toronto. Published for the 22nd International Geographical Congress, Montreal, 1972.

MODULAR UNIT 2

WORLD PATTERNS

MODULAR UNIT 2 - WORLD PATTERNS

TABLE OF CONTENTS

Theme One: World Patterns of Population and Settlement

Specific Objectives

1. Pupils should be able to make comparisons between the population densities of Canada and some selected parts of the world.

2. Students should gain an understanding of the uneven distribution of the world's population and of the broad factors contributing to this pattern.

3. The students should become aware of the dynamics of population growth and gain an appreciation of the world's population problem.

4. A fuller knowledge should be acquired of the contrasts in settlement and settlement types over the face of the earth, and of the problems and complexities of urban life.

Concepts

1. The human occupance of Canada

Settlement patterns in Western Canada and in Eastern Canada were studied in the previous unit. The intent here is to briefly review and integrate as well as extend for all of Canada the previous concepts formed and generalizations made.

a. What is the pattern of population growth and settlement in Canada?

b. What are the main factors which have influenced the form of this settlement pattern?

c. What are some of the problems associated with the settlement pattern and population densities?

2. The human occupance of the world

   a. How many people are there in the world and what is the pattern of world population growth?

   b. Where is the population situated and why?

   c. What has been the pattern of population movements?

   d. What are the present population trends and the causes?

   e. What is the meaning of population density? i.e. what are the different ways in which it can be measured?

   f. What are the cultural and physical limitations of population density?

   g. Do we have a world over-population problem?

   h. What is the relationship of food supply and over-population?

   i. What are some of the problems associated with world over-population?

   j. What are solutions to an over-population problem?

3. Case studies in population and settlement

   One or more case studies of recent population changes in certain countries and the distinctive problems they pose should enable the student to better compare the population densities of Canada with those in other parts of the world and should lead to a fuller appreciation of the world population problem.

   Suggested case studies might include: India and Pakistan, China, United Arab Republic, Mexico, Japan, Mauritius.

4. Man's settlement types and patterns

   a. How may settlement types be classified?

   b. What is the character, origin and distribution of dispersed settlements?

   c. What is the nature, origin and distribution of clustered or compact settlements?

   d. What is an urban settlement and what are the different types of urban settlements?

5. Cities of the world and world urbanization

   a. How have cities developed?

   b. What is the present world distribution pattern of cities?

   c. Why do cities exist?

   d. How may cities be classified?

   e. Is there a difference in the form and function of North American cities as compared with European cities or Asian cities or South American cities?

   f. What are some of the major problems of cities today?

   g. What is the future of the city?

   h. What are the present patterns of world urbanization?

Supplementary References

Maps and Aerial Photos

Foreign Topographic Maps. Ask for a map catalogue.

- Great Britain:

The Director General
Ordnance Survey
Romsey Road
Maybush
SOUTHAMPTON, SO9 4DH, England

- Other Foreign Countries:

Edward Standford Ltd.
12 - 14 Long Acre
LONDON, WC2E 9LP, England

Topographic Maps and Aerial Photos

Chevrier, E. D., and D. F. Aitkens. Topographic Map and Air Photo Interpretation. The Macmillan Company of Canada Ltd., Toronto, 1970.

Contents: Section A - Introduction to Topographic Maps and Air Photographs

Section B - Foreign Maps

Section C - Canadian Maps and Air Photographs

Wanless, H. R. Aerial Stereo Photographs. (U. S. A. and foreign) T. N. Hubbard Scientific Company, Northbrook, Illinois, 1965.

Reading Maps. T. N. Hubbard Scientific Company, Northbrook, Illinois. (Maps, with aerial photos of corresponding areas reveal the important purposes of maps and the relationships of land topography to cultural features).

Richason, B. F. Atlas of Cultural Features. T. N. Hubbard Scientific Company, Northbrook, Illinois. (Topographic maps and aerial photos are shown for simultaneous viewing and comparative studies relating to the imprint of man on the land).

Supplementary References

Books

Beaujeu - Garnier, J. The Geography of Population. Longman Canada Ltd., Don Mills, Ontario, 1966.

Brinkhurst, R. O. and D. A. Chant. This Good, Good Earth: Our Fight for Survival. Macmillan of Canada, 1972. (Concerns pollution problems in Canada).

Broek, J. O. M. and J. W. Webb. A Geography of Mankind. McGraw-Hill Book Company, Toronto, 1973. (Excellent book on all aspects of cultural geography. Part III - SETTLEMENTS: Farm and Village; Towns and Cities; Emerging Urban Patterns. Part IV - POPULATION CHANGE: The Differential Growth of Population; Population Movements; Problems of Population Growth.

Clarke, John I. Population Geography. (2nd edition). Pergamon Press, London, 1972.

Demko, George, J. et al. Population Geography: A Reader. McGraw-Hill, Toronto, 1970.*

Hutchinson, J. Population and Food Supply. Macmillan of Canada, Toronto, 1970.

Kalbach, W. E. and McVey. The Demographic Basis of Canadian Society. McGraw-Hill, Toronto, 1970.

Kendall, H. M., Glendinning, MacFadden. Introduction to Geography. Harcourt, Brace & World Inc., New York, 1967. (Chapter VI - MAN AND SETTLEMENT: The Cultural World; The Earth's Population; Man's Settlement Types).

Kosinski, L. The Population of Europe. Longman Canada Ltd., Don Mills, Ontario, 1970.*

Krueger, R. R. and R. C. Bryfogle. Urban Problems. Holt, Rinehart & Winston of Canada, Toronto, 1971.

Lowry, J. H. World Population and Food Supply. Macmillan of Canada, Toronto, 1970.

Man and Hunger, World Food Problems No. 2. F. A. O. of the U. N., Rome, (Queen's Printer, Ottawa), 1961.

Mumford, Lewis. The City In History. Harcourt, Brace & World Inc., A Harbinger Book, New York, 1961.*

Rapoport, A. House Form and Culture. Prentice-Hall, Englewood Cliffs, 1969.*

Sjoberg, G. The Preindustrial City. The Free Press, New York, Collier-Macmillan Limited, London, 1965.*

Sopher, D. E. Geography of Religions. Prentice-Hall, Englewood Cliffs, 1967.*

Stamp, L. Dudley. The Geography of Life and Death. Collins, The Fontana Library, London, 1964.*

Stanford, Q. H. The World's Population: Problems of Growth. Oxford University Press, Toronto, 1971. (A book of readings).

Trewartha, G. T. A Geography of Population: World Patterns. J. Wiley & Sons, Toronto, 1969.*

Trewartha, G. T. The Less Developed Realm: A Geography of Its Population. J. Wiley & Sons, Toronto, 1972.*

Trewartha, G. T., A. H. Robinson amd E. H. Hammond. Elements of Geography. McGraw-Hill Book Company, Toronto, 1967. (Chapter 25: Population; Chapter 26: Settlements).

Wilson, M. G. A. Population Geography. Thomas Nelson(Australia)Ltd., 1968.*

Zelinsky, Wilbur. A Prologue to Population Geography. Foundations of Economic Geography series. Prentice-Hall Inc., Englewood Cliffs, 1966.*

* Paperback

Theme Two: World Patterns of Man's Use of the Earth

Specific Objectives

1. Students should recognize that there is a close correlation between the distribution and density of mankind over the earth and the opportunities for making a living.

2. The student should appreciate that the culture of a people, including its body of technology, is strongly related to its ability to alter, organize and use the earth's resources and has a direct bearing upon the standard of living.

Concepts

1. Human economics

   a. What are the basic ways by which man gains a livelihood throughout the world?

   b. What is the general distribution pattern of the major types of economies?

   c. What are the characteristics of each of the major economies?

2. Primitive hunting - fishing - collecting

   a. Where is this type of economy still found today?

   b. What is the impact upon the land of this form of economy?

   c. Some case studies could be done of people who are still engaged in this form of livelihood.

3. Pastoralism or livestock economy

   a. What are the major types of pastoralism or livestock economy of the world?

b. Where are the centres of origin of domestic animals and what are some of the suggested reasons for their domestication?

c. What factors influence the type of animals raised by people?

d. What are some of the main foodstuffs and industrial resources obtained from animals?

e. What are some of the recent developments in livestock production?

f. What are some of the problems of livestock production in the tropics?

g. Selective case studies of people who are engaged in various forms of this economy could be done.

4. Agriculture of the world

a. What are the main types of agriculture of the world?

b. Where are the centres for early domestication of plants?

c. What is the present day distribution pattern of some of the major food and industrial plants?

d. What factors influence the crops to be produced in a region?

e. How is calorie production per acre or cultivated land per person related to the standard of living and the world population problem?

f. What are some of the common problems of farmers?

g. What are some of the recent changes and developments in agriculture?

h. What are some of the effects upon the environment of man's modification and alteration of the land?

5. World industry and resources

   a. Industrial resources from the forests

      - where are the major forest regions of the world located?

      - what are the chief uses of forest resources?

      - what factors account for the present location of the world lumbering (including pulp and paper) industry?

   b. Industrial resources from the sea

      - what are the physical and cultural factors which control the location and extent of world commercial fishing?

      - which are the world's major fishing nations?

   c. Industrial resources from the earth's crust

      - what is the distribution of the major minerals and related industries in the world today? (e.g. oil and natural gas, iron ore, coal, copper, gold, salt, etc.)

   d. Resources

      - how important is water as a resource?

      - what are some of the changing resources in the world today?

      - what are some of the problems related to the use and conservation of the world's resources?

6. Manufacturing

   a. What are the main requisites for the location of industry?

   b. Where are the major manufacturing regions of the world located and why?

c. Will this pattern change?

d. What are the distinguishing characteristics of primary, secondary and tertiary industry?

e. What are some of the main factors in the location of some of the major secondary and tertiary industries of the world? (e.g. automobile industry, the textile industry, oil refining industry etc.)

7. Japan: case study of industrialization

a. How has Japan attacked its resource problem?

b. What is the distribution and importance of the industrial areas in Japan?

c. How has industry helped Japan to survival?

8. World transportation and commerce

a. What are the different types of transportation and communication systems?

b. What is the world pattern of the various means of transportation?

c. What are the advantages and disadvantages of each means of transportation?

Supplementary References

Maps and Aerial Photographs

See Theme One references, p. 59

Books

Alexander, John W. Economic Geography. Prentice-Hall Inc., Englewood Cliffs, 1963.

Alexandersson, Gunnar. Geography of Manufacturing. (Foundations of Economic Geography Series.) Prentice-Hall Inc., Englewood Cliffs, 1967.*

Broek, J. O. M. and J. W. Webb. A Geography of Mankind. McGraw-Hill Book Co., Toronto, 1973. (An excellent book on all aspects of cultural geography).

Detwyler, Thomas. Man's Impact on the Environment. McGraw-Hill, Toronto, 1971.

Dicken, Samuel, N. and Forrest R. Pitts. Introduction to Cultural Geography. Xerox College Publishing, Toronto, 1970.

Gourou. Tropical World. (4th edition) Longman Canada Ltd., Don Mills, Ontario, 1966.

Gunn, A. Patterns in World Geography. Gage & Company, Toronto, 1968.

Heintzelman, Oliver H. and Richard M. Highsmith. World Regional Geography. Prentice-Hall Inc., Englewood Cliffs, (3rd edition), 1967.

Herfindahl, Orris C., et al. Quality of the Environment; an Economic Approach to Some Problems in Using Land, Water and Air. Resources for the Future Inc., John Hopkins Press, Baltimore, 1965.

Hoyt, Joseph Bixby. Man and the Earth. Prentice-Hall Inc., Englewood Cliffs, (2nd edition), 1967.

Isaac, E. Geography of Domestication. Prentice-Hall, Englewood Cliffs, 1970.*

Kendall, H. M., R. M. Glendinning and C. H. MacFadden. Introduction to Geography. Harcourt, Brace & World, Inc., New York, 1967. (SECTION VII - MAN'S USE OF THE LAND AND THE SEA: Chapter 18 - Man's Basic Economy: Agriculture; Chapter 19 - Foodstuffs and Industrial Resources from Agriculture; Chapter 20 - Foodstuffs and Industrial Resources from the Forests; Chapter 21 - Foodstuffs and Industrial Resources from the Sea. SECTION VIII - MAN'S USE OF ENERGY AND MINERALS: Chapter 22 - Harnessing Nature's Energy Resources; Chapter 23 - Developing Nature's Mineral Wealth. SECTION IX - Chapter 24 - Man's Industrial World; Chapter 25 - Transportation in a Shrinking World).

Parson, Ruben L. Conserving American Resources. Prentice-Hall, Englewood Cliffs, 1972.

Peach, W. N. and J. A. Constantin. Zimmerman's World Resources and Industries. Harper & Row, New York, 1972.

Smith, Guy-Harold. (ed.). Conservation of Natural Resources. John Wiley & Sons Inc., New York, 1965.

Stamp, D. A Commercial Geography. (9th edition). Longman Canada Ltd., Toronto, 1973.

Trewartha, G. T., A. H. Robinson and E. H. Hammond. Elements of Geography. McGraw-Hill Book Co., Toronto, 1967. (Chapters 27, 28 and 29).

Theme Three: World Patterns of Physical Elements

Specific Objectives

1. There should be the development of understanding of the spatial distributions, relations, processes and variations of the physical - biological system (e.g. climate, vegetation, soil, landforms) and its subsystems.

2. Students should interpret the physical-biological world, in spatial units, as the foundation for human occupance and activities.

3. Students should develop an understanding of the changes and processes of changes in the physical-biological world, resulting from man's modification of his habitats.

Concepts

1. The lithosphere

   a. What are the characteristics of the lithosphere and of the basic groups of rocks which compose the earth's crust?

   b. What are the main processes in the breakdown of rocks?

   c. What is the relationship between characteristics of rock types and the formation of relief features under different climate conditions?

   d. Which mineral deposits tend to be associated with each of the major rock types?

2. Landforms

   a. In general what are the major landform types and landform patterns on the surface of the earth?

b. What advantages and disadvantages do each of the major landform types present for human settlement?

c. What processes account for the shaping of landforms from within the earth's crust? What are some of the resulting landforms and where are some of the more important examples located?

d. What impact do the effects of the processes which originate from within the earth's crust have upon man and his activities?

(e.g. earthquakes, volcanic eruptions, etc.)

e. What processes are responsible for the shaping of landforms from without the earth's crust and what are the major agents which affect the development of the landforms?

f. What landforms and landscapes result from the external landforming processes and the related agents?

e.g. - the work of moving water in humid lands (valley formation and solution)

- the work of moving water in dry land (water cut and water deposited landforms)

- the work of wind (erosional work and depositional work)

- the work of waves and currents

g. Of what geographic significance are these landforms and landscapes for human occupance?

3. Climate: elements, controls and regions

a. What are essential characteristics of the climate elements (temperature, precipitation, pressure and wind) and climatic controls (latitude or angle of sun, land and water distribution, winds and cyclonic storms, ocean currents, altitude and mountain barriers) which produce the world's climatic types or regions?

b. How are the climatic regions defined?

c. What are the major climatic regions of the world and what is their pattern of distribution?

d. For each climatic region what is the impact of climate upon man and his activities? e.g. physical activity, health, clothing, type of shelter, agriculture and other economic activities.

4. Vegetation - soils

a. What are the main soil characteristics, soil forming agents and processes, and the controls of the soil forming processes?

b. What are the major soil types which are associated with each of the world climatic regions?

c. If you were a grain farmer in Canada in which of the zonal soil areas would you choose to have your farm? Why?

d. What are some of the problems arising from man's use of the soil?

e. Which natural vegetation types tend to be associated with each of the world climatic regions and why?

f. What are some of the changes in natural vegetation which have resulted from man's occupance of the earth?

Supplementary References

Maps and Aerial Photographs

See Theme One References, page 59.

Sets of Air Photo Stereograms. Ask for a catalogue.

Committee on Aerial Photography
University of Illinois
URBANA, Illinois, U. S. A.

Books

Bloom, A. L. The Surface of the Earth. Prentice-Hall Inc., Englewood Cliffs, 1969. (Foundations of Earth Science Series).

Bridges, E. M. World Soils. Macmillan of Canada, Toronto, 1970.*

Burnett, R. B. Physical Geography in Diagrams. Longman's, London, 1965.

Clark, S. P., Jr. Structure of the Earth. Prentice-Hall Inc., Englewood Cliffs, 1971. (Foundations of Earth Science Series).

Cruickshank, J. Soil Geography. David & Co., 1972.*

Dohrs, F. and L. M. Sommers. Selected Readings in Physical Geography. Thomas Y. Cromwell Co., New York, 1967.*

Ernst, W. G. Earth Materials. Prentice-Hall Inc., Englewood Cliffs, 1969. (Foundations of Earth Science Series).

Kendall, H. M., R. M. Glendinning and C. H. MacFadden. Introduction to Physical Geography. Harcourt, Brace & World Inc., New York, 1967.

Lehr, R. P., R. W. Burnett and H. S. Zim. Weather. (A Golden Science Guide). Golden Press, New York, 1965.*

Mauder, W. J. The Value of the Weather. Methuen Publications, Agincourt, Ontario, 1970.

Nelson, J. G. and M. J. Chambers. Vegetation Soils and Wildlife. Methuen Publications, Agincourt, Ontario, 1969.*

The Ocean. (A Scientific American Book). W. H. Freeman & Company. San Francisco, 1969.

Riley, D. R. and A. Young. World Vegetation. Macmillan of Canada, Toronto, 1966.* (Well illustrated booklet of vegetation as well as soils).

Skinner, B. J. Earth Resources. Prentice-Hall Inc., Englewood Cliffs, (Foundations of Earth Science Series).

Smythe, J. M., C. G. Brown and E. H. Fors. Elements of Geography: Physical Geography. Macmillan of Canada, Toronto, 1970.*

Strahler, A. N. Introduction to Physical Geography. J. Wiley & Sons, Toronto, 1973.

Trewartha, G. T., A. H. Robinson and E. H. Hammond. Fundamentals of Physical Geography. McGraw-Hill Book Co., Toronto, 1968.

Trewartha, G. T., A. H. Robinson and E. H. Hammond. Physical Elements of Geography. McGraw-Hill Book Co., Toronto, 1967.

Watson, Janet. Rocks and Minerals. Methuen Publications, Agincourt, Ontario, 1973.*

* Paperbacks

APPENDIX A

CONCEPTS*

The explanation of concepts that follows is offered as a teaching aid for you. The specific terms which apply to these concepts need not be given to the students at this time. Our concern is more with introducing the students to the ideas implicit in the concepts.

Areal Association

Once the existence of a particular spatial distribution is noted (and this is often done through the use of a map), the next step is to "explain" or "account for" the existence of the distribution and to determine why it has the spatial characteristics it has. This can be done in a number of different ways. One way is to hypothesize the existence of a meaningful co-existence between the original distribution -- the problem variable -- and one or more other distributions. As such, the hypothesis is that two or more distributions are interrelated.

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* Adapted from 'Concepts' in

Vuicich, G. Geography in an Urban Age. Unit I of the High School Geography Project. Boulder, Colorado: Association of American Geographers, 1967.

For example, in most cities a pattern can be seen in the differences in the class of houses located in that city. In some parts of the city, beautiful residential sections are found; in others, slums; and in still others, varying degrees between these two extremes. As geographers, we are interested in the variation in the spatial distribution of classes of housing. As one examines the location of these different classes of houses, one finds that they are not generally found intermixed with one another. Each class tends to locate in certain areas and not in others. Our curiosity aroused, we ask ourselves why this particular pattern results. Our thinking leads us to speculate what factors would bring about or be related to our problem variable. We should be able to think of several: that slum areas are found in areas of lower land values; in or near areas which have undesirable features such as noise, odor, flooding, severe congestion; that such an area would more likely be occupied by people with low incomes and less formal education than average. We would probably also speculate that the higher class residential areas would be associated with the opposite of the above. What we are really doing is hypothesizing a relationship between the problem variable (class of housing) and a number of other seemingly related factors. The next step is to test our hunches. We would start by gathering relevant data. Following this, we have several alternatives open to us as to how to proceed. We could either map our data or we could proceed using some rather sophisticated mathematical techniques. For our purpose, let us assume we use the map - it is

easier and it demonstrates the point we wish to make. After we map our data we can compare the several maps -- always using the map showing our problem variable as one of the maps being compared. (In comparing these maps, the assumption is that we used a colouring scheme which was consistent throughout). If we had hypothesized that where we found high cost residences, we would expect to find high land values, high family incomes, high levels of formal education; then we would expect to find these maps all showing the same areas with high values for the particular variable mapped. The conclusion we would make is that there was a positive association between the spatial distributions involved. We have, in a simple way, pointed up an areal association. It should also be noted that an areal association may be negative; that is in explaining the existence of something it can be just as significant that it always occurs when another thing is absent as it is to know that it occurs in the presence of something.

It should also be noticed that just because two or more distributions co-exist in space does not necessarily mean that they are related. It is entirely possible that the phenomena involved are located near one another purely on the basis of chance. What is needed, therefore, is to establish a logical or rational interconnection between or among the phenomena being studied.

It should be remembered that area associations are relative to the extent of the area under study, the location of that area, and the culture group occupying that region. An areal association that is found to be strong in one part of the world may not exist in another part of the world. For example, an area association between a certain

amount of precipitation and a certain type of crop may be found in the United States, but the same amount of rainfall may be associated with different crops in India.

Density

The spatial expression of phenomena can also be studied in terms of their density, or how many objects there are in a specified area. In a forest, the spatial distribution of trees is considered dense if there are many trees per unit or area in the forest. Looking at a map of human population, it is possible to distinguish areas where the spatial distribution of people is very dense or areas where there are very few people. Thus, when speaking of density, one is really talking about a spatial average. It is an average relative to the number of these things in a given area.

Human Occupance

This concept refers to the characteristic use that a society makes of a portion of the earth's surface and the transformations of the original landscape that result. The landscape pattern that develops is a result of the physical environment and the culture of the people. The use of similar physical environments can be very different depending on the culture of the society. For example, the Amazon Basin has indigenous hunting and fishing peoples, rubber

plantations, and a large modern city all existing in a similar physical environment.

Pattern

In discussion pattern, one is describing the configuration of similar phenomena over an area. A drainage pattern might be described as dendritic. The pattern of agricultural land use in an area might be rectilinear. The pattern of the Great Lakes might be called "fingerlike". In making a general statement about pattern a better understanding of the spatial distribution of objects can result.

Region

A region is an arbitrary designation of a continuous area that possesses some degree of similarity. The similarity may involve a single feature or a combination of associated features that recur throughout the area. As a distinctive spatial unit, the region may be helpful in explaining spatial distribution.

For example, areas of the world having many lakes per square mile, as in Minnesota and Southern Sweden, can be outlined and defined as regions of many lakes per square mile; or, areas where a given language is dominant over all others may be outlined and referred to as a language region. The area around a city which is dependent on and

supportive of the city may be outlined and called the trade area, or tributary region of that city. The city itself can be studied as a region.

In defining regions, any criteria may be chosen to determine where the boundary of the region is located. Should one wish to outline the areas of the United States where farming is the major economic activity, it may be done by measuring the percentage of population engaged in agricultual activity, or some other relevant statistic, and outlining the area where that figure reaches a certain minimum. The result would then be the farming regions of the United States. The same could be done with manufacturing areas.

The criterion which is selected -- farming -- is dependent only on what is hypothesized as important in terms of what one wants to know. Should the study be the spatial distribution of smog, the regions of manufacturing intensity rather than the regions of farming intensity would be of greater interest. In all studies of regions, it is important to remember that the criteria used to delimit the regions are chosen by the individual and have no intrinsic merit. Should the irrelevant criteria be chosen the study will be unsuccessful.

Because the criterion selected by which to delimit a region changes through time, the boundary of the region will be altered. Still other regions, by their very nature, migrate across the land. For example, a cyclonic storm (which is a relatively uniform mass of air) migrates almost constantly until it disappears. A region of mountains, on the other hand, may remain relatively stable for centuries. All regions

are changing, but at varying rates.

Scale

The concept of scale is important to geography as phenomena are studied in limited cases and on a world wide distribution. The student must be able to relate the weather observation he makes to a climatic region or a pattern on a world map to specific examples in his local area. The scale which is used in a study has implications for the specificity and generalization that is appropriate.

Spatial Distribution

The location of a single object tells little. More characteristics of that object can be seen if many of its kind are thought about or examined. It is, therefore, helpful to consider all the houses in a city rather than just one.

Once these qualitative distinctions are made, it is possible to group like objects and examine the location of the group. When this is done, the geographer is working with a spatial distribution -- a simple but basic notion in geographic research.

Working with a spatial distribution rather than dealing with a single object is helpful because it is possible to make general statements relative to that object and all others like it. Generalizations, rather than the specific,

are often of prime interest. The ability to generalize can best be achieved by studying many of the same kinds of objects as a set.

Spatial Interaction

Spatial interaction in part refers to the movement of people and goods from place to place. The extent and variety of these movements varies with the technology of the people involved.

These movements also take place among natural phenomena. Spatial interaction also refers, then, to the ocean currents and wind systems of the world, and the migrations of animals.

Spatial interaction also refers to the communication networks of the world. Telephone calls, newspapers, and television are agents of spatial interaction. The variety of connections of this type, their extent and intensity, varies with the technology of the people involved.

In the physical world, these connections can be likened to those between a river delta and the headwaters of the river in the mountains. The connection, or flow, between headwaters and delta involve the spatial interaction of precipitation, surface streams and ground water, operating within a given topographic frame.

In the same way, communications among people operate within a technological frame.

Spatial interaction in the human world in modern times can be extremely complex. People, goods, services, telephone calls, television networks, and newspapers may all move simultaneously in both directions between two communities.

Likewise, the movements of such natural phenomena as air masses may be extremely complex and difficult to predict.

The processes of spatial interaction, by their very nature as processes of communication and movement, may bring about changes from place to place. Places that had no manufacturing, through communication may develop manufacturing industries. This change is related to the concept of diffusion.

APPENDIX B

FILMS AND FILMSTRIPS

The films and filmstrips listed below may be obtained from the Audio-Visual Services Branch or through the film libraries of the major city school systems. The source of other materials is indicated.

Theme One: The Change in Settlement Patterns in the Local Area

Films

T-1959	City Under Pressure - Edmonton
Tk-1368	Edmonton - Gateway to Canada's Great North
T-205	Cities - How They Grow (1941)
Tk-1733	Town for Tomorrow
Tk-1833	The House of Man - Our Changing Environment
T-1814	Latitude, Longitude and Time Zones
Tk-1457	School Libraries in Action
Tk-1139	Reading Maps
Tk-2033	Map Skills - Using Different Maps Together

Available Through Department of Extension, University of Alberta :

NFB	Neighbours - Experimental Animation
NFB	Suburban Living - Six Solutions
NFB	Town Planning
NFB	Lewis Mumford On The City - 6 films
NFB	City Scene - Montreal, Athens, Bankok

Filmstrips

Pk-3982	Industrial City - Toronto
Pk-4377	River City - Montreal
Pk-4338 - 4347	Maps and How to Use Them - 10 filmstrips
Pk-1459 - 1462	Exploring Through Maps Series - 4 filmstrips

Kit

NFB	City In Transition - Toronto - filmstrip, transparencies, maps, charts, etc., may be purchased directly from National Film Board, Montreal for $46.00

Theme Two: Settlement Patterns In Western Canada

Films

Tk-1851	Cattle Ranch
Tk-1936	Changing Wheat Belt
Tk-1850	Settlement of the Western Plains
Tk-2012	Change in the Western Mountains
Tk-1205	The Great Plains
Tk-1505	Climates of North America
T-1311	Precambrian Shield
Tk-1391	Fraser River
Tk-1691	Landform Regions of Canada

Filmstrips

Pk-4321 - 4326	Canadian Geography Series - 6 Filmstrips - Regions of Canada
Pk-3953 - 3960	Canada's North Series - 8 Filmstrips - Northern Districts and Life of Native People
Pk-3227	(Great Plains) Railway City - Winnipeg
Pk-3692	Visit to a Wheat Farm
Pk-3983	Timber City - Vancouver
Pk-3169	Vancouver and the Western Mountains
Pk-3864 - 3868	Western Plains Series - 5 Filmstrips

See catalogues of Audio-Visual Branch for other listings of filmstrips.

Theme Three: Patterns in Eastern Canada

Films

T-1185	The Great Lakes - St. Lawrence Lowlands
Tk-1392	The Story of the St. Lawrence Seaway
Tk-1938	The Ever-changing Lowlands
T-1336	Atlantic Region
Tk-1730	The Canadian Shield - Saguenay
T-1311	Precambrian Shield
	Social Geography Series:
T-1961	Miner
T-1380	Fisherman
T-1745	Terra Nova
Tk-1957	The Baymen - Fishing Village in Newfoundland
Tk-1962	Antigonish - Fishing Co-op

Kit

NFB City in Transition - Toronto

Filmstrips

Atlantic Region Series:

Pk-3065	Introducing the Atlantic Region
Pk-3386	Deep-Sea Fishing
Pk-3404	From Mine and River
Pk-3434	From the Sea
Pk-3054	Transport

Great Lakes - St. Lawrence Lowlands Series

Pk-4397	Geography of Newfoundland and Labrador
Pk-3982	Industrial City - Toronto
Pk-4420	Province of Quebec - Appalachian Region
Pk-4375	Province of Quebec - Laurentian Region
Pk-4376	Province of Quebec - St. Lawrence Region
Pk-4377	River City (Montreal)
Pk-3794	St. John's Newfoundland
Pk-3392	Background of the Seaway
Pk-3393	Seaway Travel
Pk-3394	Seaway Power Project, The

See catalogues of Audio-Visual Services Branch for other listings of filmstrips.

Theme Four: World Patterns

Films

T-1384	The Living City (cycle of city and need for urban planning)
Tk-1495	Brasilia - New City in Brazil
Tk-1985	We Just Take It All For Granted (modern agriculture)
Tk-1840	French Farm Family (farm life at elementary level)
Tk-2047	Japanese Boy - The Story of Taro (agricultre in Japan)
Tk-1784	Japanese Village Life (agriculture and effect of technology)
Tk-1725	Japan's New Family Patterns
T-1833	The House of Man - Our Changing Environment (pollution and other conservation problems)
T-1534	Focus on Foods (international importance of food processing)

Filmstrips

Pk-4218	Everyday Life in Japan
Pk-3428	Culture Sets the Pattern in Japan
Pk-3429	Meet the Japanese People
Pk-4078	Our Food Surplus
P-3897	Growing Crisis for the Cities (New York Times)
T-4011	What's Happening To Our Natural Resources? (New York Times)

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